CHILD RESISTANT LIGHTER
(Patent No.: ZL 98 2 08691.1)

Document AK
LEI, Hou Chong
U.S. Serial No. 10/643,287

The Illustration Of Patent for New-style Utility Lighter

ZL Patent No. 98208691.1
Publish date by authority:June,23rd ,1999. **Publish No.:CN2325668Y**

Apply date: Mar, 25th, 1998. **Issuing date: May, 26th , 1999** **Owner of patent: Lei HouChong** **Designer: Lei HouChong** **Add:510room,4floor,#6,BinJiangmid-road, Fo Shan City, GuangDong.**	**Apply No.: 98208691.1** **Agency of patent: Fo Shan Patent Agency.** **Agent: Deng Ying** **1 Page for Claim of Right Requested** **2 Pages for Illustration, 1Page for Drawings attached**

Name of New-style Utility Lighter: Child Resistant Lighter

Summary:
The Child Resistant Lighter consists of gas tank, shield, gas valve device, bracket, device for spark arising and child resistant mechanism. There are two places of this lighter with the child resistant mechanisms.
The first child resistant mechanism is designed at both side of spark wheel .It composed by the rotating axes which tightening connected with the hole for the axes of the spark wheel. The maximum diameter of rotating axes is similar or equal to the diameter of the spark wheel. The second is setup the damping spare parts which preventing the level pressed down at rearward of the level. The whole ignition for this lighter can be completed by only one action. Its child resistant structure is simple and easy to operate, safety to use.

Claim of Right Requested

1.This is a Child Resistant Lighter, included gas tank, shield, gas valve device, bracket and device for spark arising. The device for spark arising consists of the spark wheel, flint and flint spring. Its feature is: there are two places setup the child resistant mechanism, its first child resistant mechanism is designed at both side of the spark wheel .It composed by the rotating axes which tightening connected with the hole for the axes of the spark wheel. The maximum diameter of rotating axes is similar or equal to the diameter of the spark wheel. The second is setup the damping spare parts which preventing the level pressed down at rearward of the level.

2. The feature of this lighter by claim of right requested 1 is with two rotating axes, one part of the two rotating axes is tightening connected

with the hole of the spark wheel's axes, the other part is setup in the hole of axle on the bracket and match up to the aperture of the hole.

3. The feature of this lighter by claim of right requested is with a damping spare part as spring or with a spare part made by the rubber materials under the rearward of the level.

Direction For Child Resistant Lighter

This new-style utility lighter is with liquid gas as fuel material, especially with the child resistant mechanism.

In order to avoid the harms and fire accidents by the children play with the lighter and the grown unconsciously operate to ignite, a lot of countries successively make a rule that the lighter sale on their homeland must be with the child resistant mechanism. In recently years, various lighters with child resistant have been sold on the market incessantly, In rough, It can be divided into two kinds for these child resistant lighter by the time of ignition actions. One type is the ignition action for the lighter should be completed in two actions. The feature for this kind of lighter is with more safety, but it is not easy to operate. The other type is the ignition action without obviously two actions. The feature for this kind of lighter is the structure simple and easy to operate, but with less safety.

The purpose for this new-style utility lighter is directed towards above problems to setup the child resistant mechanism at two place of the lighter, by only one action to complete the whole ignition.

It works as follows: The lighter included gas tank, shield, gas valve device, bracket, and device for spark arising. The device for spark arising consists of the spark wheel, rotating axes, flint and flint spring. There are two places with the child resistant mechanism. The first child resistant mechanism is setup at both side of spark wheel, It **composed by the rotating axes which tightening connected with the hole for the axes of the spark wheel. The maximum diameter of rotating axes is similar or equal to the diameter of the spark wheel.**

For the child resistant mechanism is the same as aligned with the spark wheel, It is different from the normal ignition by rotate both side of the spark wheel when igniting, it is instead of pressing down the child resistant device and spark wheel by thumb with enough force, making the thumb which touching the spark wheel of the child resistant device impact the force directly on the spark wheel to rotate it for igniting. For the diameter of the spark wheel is smaller than the

diameter of the side wheel, so the force impacted on the spark wheel is heavier than the force impacted on the side wheel of the normal lighter. The second child resistant device for this lighter is setup under the rearward of the level of the gas valve, which with a damping spare part under the bottom space of the rearward of the level. When pressing down the level, it must be impacted a more heavier force than the normal lighter to overcome the resistance for unlocking the gas valve. It is obviously that there are two places (the rotating spark wheel and the pressing down level) have been setup the child resistant mechanisms. For only impacting more heavier force to this lighter than normal lighter, thus two of the child resistant mechanisms comprised the double-safety characteristic for this lighter. It will be effective to avoid the harm by the children play with the fire and also with highly safety to ignite to the grown men without intent.

The first child resistant mechanism also can be instead of adopting two types of child resistant mechanisms which put forth on the apply documents (No. 97219832.6) for " Child Resistant Lighter by the applicant. One type is setup the side wheels on the coaxial of the spark wheel, the side wheels matched up to the aperture of the rotating axes. The diameter of the side wheels is larger than the outside diameter of the spark wheel; the other type is to make the top of shield extend to cover both side of the spark wheels, and its height is equal or longish to the top of the park wheel.

The new-style utility lighter with the advantages as follows:

1. Two of the child resistant mechanisms of this lighter respectively control two spare parts (spark wheel and level) which using in ignition actions. This kind of lighter is more safety than the lighter with one child resistant mechanism.
2. The structure of this lighter is simple, easy to manufacture and good for mass productive.
3. Easy to operate. It will not change the operation way for the normal lighter, only increasing the force in the process of the operating.

Figure 1 is the sketch map of the structure for this lighter.

Figure 2 is the cross-section of A-A for figure 1.

The following is further to illustration by practical instance and drawing attached.

Refer to the figure 1 and 2, this child resistant lighter consist of gas tank, shield 5, gas valve 3,bracket 11, the device for spark arising and the child resistant mechanism. The gas tank included the fuel storage 1 and the cover of the storage 2. The gas valve device 3 is setup on the cover of the storage 2. The device for spark arising is setup on the

bracket 11,and included the spark wheel 7,flint 8, and flint spring 12. There are two places with the child resistant mechanisms, its first child resistant mechanism composed by the rotating axes 13 which tightening connected with the hole for the axes of the spark wheel 7. There are two rotating axes 13. One part of the rotating axes 13 is matched up to the hole for the axes of the spark wheel 7, the another part of the rotating axes 13 is setup at the bracket 11 to match up with its interval. The maximum diameter of rotating axes is similar to the diameter of the spark wheel. The second is designed a damping spare part 10 between the bottom of the rearward of the level 9 and the bracket 11. The damping spare part 10 is a spring, as well as a part made by rubber material with elastic. When igniting, the operator's thumb presses and rotates on 13a of the rotating axes and 7a of the spark wheel. For the gyro-radius of the spark wheel is smaller than the gyro-radius of the side wheel of normal lighter, so only impacting more heavier force than the normal lighter for rotating the spark wheel 7 and rub with the flint for arising the spark, then quickly to press down 9a of the level 9 with force by thumb, this only by pressing heavier force on the level 9a can make the spring 10 to be compressed, the level 9a be downward movement and make the other part of the level be elevated the nozzle 6, unlocked the gas valve and released the fuel to ignite. Otherwise, it can't be complete for the bounce of the spring 10 is upward to bear up under the level 9 at that time, if only impacting the pressure of normal lighter, it is unable to press down the level 9. After igniting, loosening the level 9, all parts will be reset by effect of the bounce in the system, and the lighter recover in the safety condition.

实用新型专利证书

实用新型名称：安全打火机

设计人：李濠中

专利号：ZL 98 2 08691.1

专利申请日：1998 年 3 月 25 日

专利权人：李濠中

该实用新型已由本局依照中华人民共和国专利法进行初步审查，决定授予专利权。

本实用新型已由本局依照专利法进行审查，决定于 1999 年 5 月 26 日授予专利权，颁发本证书并在专利登记簿上予以登记。专利权自证书颁发之日起生效。

本专利的专利权期限为十年，自申请日起算。专利权人应当依照专利法及其实施细则规定缴纳年费。缴纳本专利年费的期限是每年 3 月 25 日前一个月内。未按照规定缴纳年费的，专利权自应当缴纳年费期满之日起终止。

专利证书记载专利权登记时的法律状况。专利权的转让、继承、撤销、无效、终止和专利权人的姓名或名称、国籍、地址变更等事项记载在专利登记簿上。

证书号　第 327512号

申请号

局长 姜颖

1999年 5月 26日

中华人民共和国国家知识产权局

[51]Int. Cl[6]
F23Q 2/16

[12]实用新型专利说明书

[21] ZL 专利号 98208691.1

授权公告日 1999 年 6 月 23 日

[11]授权公告号 CN 2325668Y

申请日 98.3.25 [24]颁证日 99.5.26

专利权人 李滚中

地址 528000 广东省佛山市汾江中路 6 号 4 梯 510

设计人 李滚中

[21]申请号 98208691.1

[74]专利代理机构 佛山市专利事务所

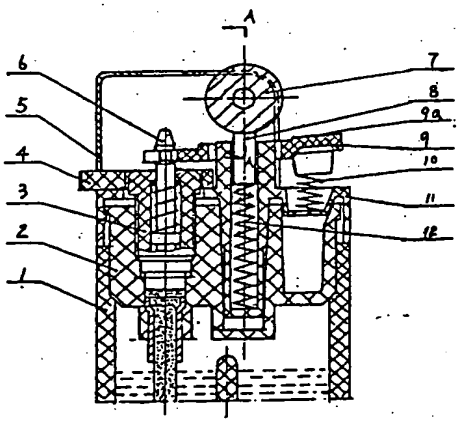
代理人 邓 英

权利要求书 1 页 说明书 2 页 附图页数 1 页

实用新型名称 安全打火机

摘要

一种以火石打火的安全打火机，包括机体、防风罩、装置、中间支架、火 花发生装置和安全装置，打火机有两处安全装置，一处是在打火轮两边，由固联在轮轴孔内的转轴构成，转轴最大直径与打火轮直径或相同；另一处是在杠杆后部的下面设有阻止杠杆的阻尼元件。该打火机只需一次动 作便可完成点火处设置的安全装置结构简单，操作方便，安全可靠。



ISSN1008-4274

专利文献出版社出版

权　利　要　求　书

1、一种安全打火机，包括机体、防风罩、气阀装置、中间支架、火花发生装置，火花发生装置由打火轮、火石、火石弹簧组成，其特征在于打火机上设有两处安全装置，第一安全装置设在打火轮两边，由固联在打火轮轴孔内的转轴构成，转轴最大直径与打火轮直径相近或相同，第二安全装置设在气阀装置的杠杆后部之下，在杠杆后端底部空间中设有阻止杠杆下压的阻尼元件。

2、根据权利要求1所述的安全打火机，其特征是转轴有两根，两转轴的一端与打火轮的轴孔过盈配合，另一端装在中间支架的孔内，与孔间隙配合。

3、根据权利要求1所述的安全打火机，其特征是杠杆后部下的阻尼元件为弹簧或橡胶类弹性元件。

说　明　书

安全打火机

本实用新型涉及一种以液化气为燃料的火石打火机，特别是设有安全机构的打火机。

为防止儿童使用打火机以及成人无意识打火造成烧伤及火灾事故的发生，许多国家都先后规定在其国内市场销售的打火机必须设有安全装置。近年来，各种各样的安全打火机不断被推向市场，如果按打火动作的次数来分的话，这些安全打火机大致可以分为两类。一类是打火动作需要两个动作才能完成，这类打火机的特点是安全性较高，但操作麻烦；另一类打火机是打火没有明显的两个动作，这类打火机的特点是结构简单、操作方便，但安全性稍差。

本实用新型的目的是针对上述问题，提供一种只需一次动作完成打火过程，并在打火机上设有两处安全装置的新型打火机。

本实用新型是这样实现的，打火机包括机体、防风罩、气阀装置、中间支架、火花发生装置，火花发生装置由打火轮、转轴、火石、火石弹簧组成。打火机上设有二处安全装置。第一安全装置设在打火轮两边，由固联在打火轮轴孔内的转轴构成，转轴最大直径与打火轮直径相近或相同。由于该安全装置与打火轮外圆平齐，打火时不是象普通打火拨动打火轮两边的侧轮片，而是用大拇指按在安全装置和打火轮上用力下压，使与安全装置打火轮接触的大拇指直接作用于打火轮上，拨动打火轮打火。由于打火轮直径小于普通打火机的侧轮片直径，所以直接拨动打火轮的力比作用普通火机侧轮片的力要大。该打火机的第二安全装置设在气阀装置的杠杆后部之下，即在杠杆后端底部空间中设有阻止杠杆下压的阻尼元件。向下压杠杆时，需施加较普通火机更大的力，才能克服阻力，打开气阀。由此可见，这种打火机在控制打火机打火的两个地方(拨动打火轮和下按杠杆)分别设置了安全机构，它们比普通打火机打火需施更大的力，故这两处安全装置构成了该打火机的双保险安全功能，非常有效地避免了儿童玩火，并对成人无意识打火，也极具安全性。

本实用新型的第一安全装置的结构还可采用本申请人在97219832.6号"安全打火机"申请文件中所提出的两种安全机构来代替，即一种是在打火轮两边同轴装上侧轮片，侧轮片与打火轮轴间隙配合，其直径略大于打火轮

外径；另一种是将防风罩顶部延伸至盖住打火轮两侧，其高度等于或略大于打火轮顶部高度。

本实用新型具有如下优点：

1、打火机上两处安全装置分别控制打火动作的两个元件(打火轮和杠杆)。这种打火机比只有一个安全装置的打火机更安全。

2、该打火机结构简单制造方便，适于大批量生产。

3、打火机操作简便，没有改变普通打火机一次动作点火的操作方式，仅在操作过程中增加力度而已。

图1是本实用新型的结构示意图；

图2是图1的A—A剖视图。

下面结合实施例和附图对本实用新型作进一步说明。

参照图1、图2，本安全打火机由机体、防风罩5、气阀装置3、中间支架11、火花发生装置和安全装置构成。机体由贮油槽1和油槽盖2组成。在油槽盖2上装有气阀装置3。气阀装置包括火咀管6、调火环4和阀门开启元件和杠杆9，杠杆9的支点设在中间支架11上。火花发生装置在中间支架11上，包括打火轮7、火石8、火石弹簧12。安全装置有二处，第一安全装置由固联在打火轮7轴孔内的转轴13构成。转轴13有两根，两转轴13的一端与打火轮7的轴孔过盈配合，另一端装在中间支架11轴孔内呈间隙配合。转轴13的最大直径与打火轮7外径大致相同。第二安全装置是在杠杆9的后端底部与中间支架11之间设一阻尼元件10，阻尼元件10为弹簧，也可以为橡胶类弹性元件。打火时，使用者的大拇指压在转轴13a和打火轮7a处拨动，由于打火轮的回转半径比普通火机侧轮片的回转半径小，所以，需施加比普通打火机更大的力，才能转动打火轮7与火石8摩擦产生火花。然后迅速用大拇指压住杠杆9的9a向下用力，此时，由于弹簧10的弹力作用向上顶住杠杆9，若按通常普通火机的按压力度是无法将杠杆9压下的，仅当施更大的力作用于杠杆9a向下压，则可使弹簧10被压缩、杠杆9a向下运动，其另一端挑起火咀管6打开气阀将燃气点燃。打完火后，手松开杠杆9，各零件均在系统内弹簧力作用下复位，打火机重新回到安全状态。

说 图

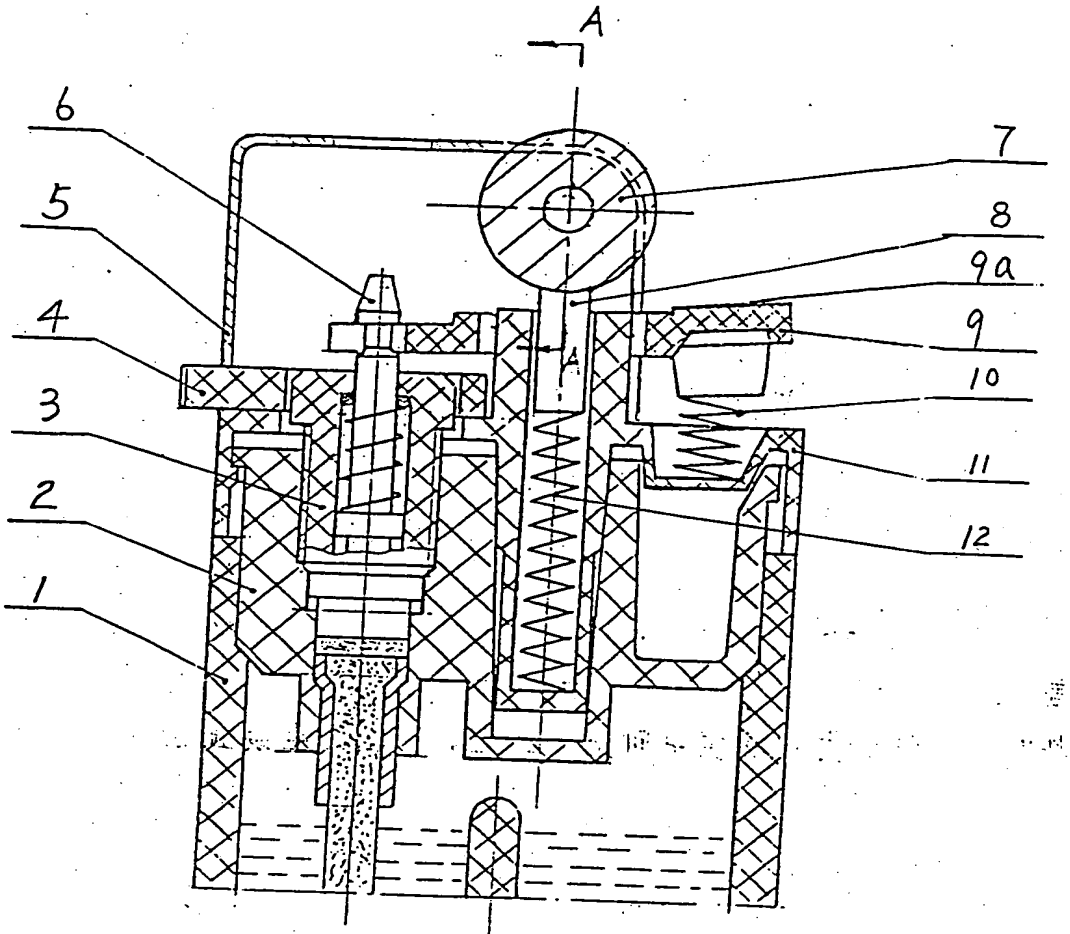


图 1

A—A

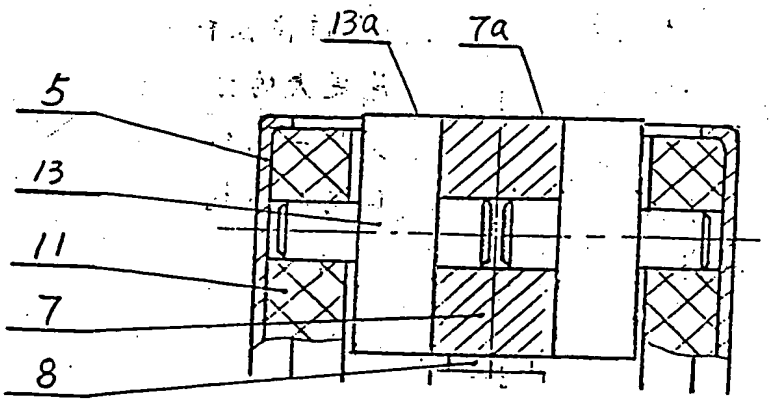


图 2